

What is claimed is:

1. A copper-based alloy excellent in dezincing resistance comprising, in percentage by weight:

5 Cu : 57 – 69%,

Sn : 0.3 – 3%

Si : 0.02 – 1.5%,

Bi : 0.5 – 3%, and

Pb : not more than 0.2% (including 0%),

10 where the ratio of Si/Sn expressed in weight percentage is in the range of 0.05 – 1 and apparent zinc content as defined by Formula (1) below is in the range of more than 39 – 50 wt.%, and

the balance of unavoidable impurities:

Apparent Zn content = $[(\text{Zn}\% + 2.0 \times \text{Sn}\% + 10.0 \times \text{Si}\%) / (\text{Cu}\% + \text{Zn}\% + 2.0 \times$

15 $\text{Sn}\% + 10.0 \times \text{Si}\%)] \times 100$... (1).

2. A copper-based alloy excellent in dezincing resistance comprising, in percentage by weight:

Cu : 57 – 69%,

20 Sn : 0.3 – 3%

Si : 0.02 – 1.5%,

Bi : 0.5 – 3%, and

Pb : not more than 0.2% (including 0%),

further containing, in percentage by weight,

25 at least one of P : 0.02 – 0.2%, Sb : 0.02 – 0.2% and As : 0.02 – 0.2% at a total content of 0.02 – 0.2%,

where the ratio of Si/Sn expressed in weight percentage is in the range of 0.05 – 1 and apparent zinc content as defined by Formula (1) below is in the range of more than 39 – 50 wt.%, and

30 the balance of unavoidable impurities:

Apparent Zn content = $[(\text{Zn}\% + 2.0 \times \text{Sn}\% + 10.0 \times \text{Si}\%) / (\text{Cu}\% + \text{Zn}\% + 2.0 \times$
 $\text{Sn}\% + 10.0 \times \text{Si}\%)] \times 100$... (1).

3. A copper-based alloy excellent in dezincing resistance comprising, in percentage by weight:

Cu : 57 – 69%,

Sn : 0.3 – 3%

5 Si : 0.02 – 1.5%,

Bi : 0.5 – 3%, and

Pb : not more than 0.2% (including 0%),

further containing, in percentage by weight,

at least one of Fe : 0.01 – 0.5%, Ni : 0.01 – 0.5%, Mn : 0.01 – 0.5%, Al : 0.01 –
10 0.5%, Cr : 0.01 – 0.5%, Be : 0.01 – 0.5%, Zr : 0.01 – 0.5%, Ce : 0.01 – 0.5%,
Ag : 0.01 – 0.5%, Ti : 0.01 – 0.5%, Mg : 0.01 – 0.5%, Co : 0.01 – 0.5%, Te :
0.01 – 0.2%, Au : 0.01 – 0.5%, Y : 0.01 – 0.5%, La : 0.01 – 0.5%, Cd : 0.01 –
0.2%, Ca : 0.01 – 0.5% and B : 0.01 – 0.5% at a total content of 0.01 – 3%,

where the ratio of Si/Sn expressed in weight percentage is in the range of 0.05 –
15 1 and apparent zinc content as defined by Formula (1) below is in the range of
more than 39 – 50 wt.%, and

the balance of unavoidable impurities:

$$\text{Apparent Zn content} = \frac{[(\text{Zn}\% + 2.0 \times \text{Sn}\% + 10.0 \times \text{Si}\%)]}{(\text{Cu}\% + \text{Zn}\% + 2.0 \times \text{Sn}\% + 10.0 \times \text{Si}\%)} \times 100 \quad \dots (1).$$

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4. A copper-based alloy excellent in dezincing resistance comprising, in percentage by weight

Cu : 57 – 69%,

Sn : 0.3 – 3%

25 Si : 0.02 – 1.5%,

Bi : 0.5 – 3%,

Pb : not more than 0.2% (including 0%),

at least one of P : 0.02 – 0.2%, Sb : 0.02 – 0.2% and As : 0.02 – 0.2% at a total
content of 0.02 – 0.2%, and

30 at least one of Fe : 0.01 – 0.5%, Ni : 0.01 – 0.5%, Mn : 0.01 – 0.5%, Al : 0.01 –
0.5%, Cr : 0.01 – 0.5%, Be : 0.01 – 0.5%, Zr : 0.01 – 0.5%, Ce : 0.01 – 0.5%,
Ag : 0.01 – 0.5%, Ti : 0.01 – 0.5%, Mg : 0.01 – 0.5%, Co : 0.01 – 0.5%, Te :

0.01 – 0.2%, Au : 0.01 – 0.5%, Y : 0.01 – 0.5%, La : 0.01 – 0.5%, Cd : 0.01 – 0.2%, Ca : 0.01 – 0.5% and B : 0.01 – 0.5% at a total content of 0.01 – 3%, where the ratio of Si/Sn expressed in weight percentage is in the range of 0.05 – 1 and apparent zinc content as defined by Formula (1) below is in the range of more than 39 – 50 wt.%, and the balance of unavoidable impurities:

Apparent Zn content = $[(\text{Zn}\% + 2.0 \times \text{Sn}\% + 10.0 \times \text{Si}\%) / (\text{Cu}\% + \text{Zn}\% + 2.0 \times \text{Sn}\% + 10.0 \times \text{Si}\%)] \times 100$... (1).

5. A copper-based alloy excellent in dezincing resistance according to any of claims 1 to 4, wherein one or both of Si-system leadless brass scrap and Bi-system leadless brass scrap are used as source starting material for Si and Bi, respectively.